

Title (en)  
Wafer and surface acoustic wave device

Title (de)  
Halbleiterscheibe und Oberflächenwellenfilter

Title (fr)  
Plaquette et filtre à ondes acoustiques de surface

Publication  
**EP 0810725 A3 19991027 (EN)**

Application  
**EP 97303330 A 19970516**

Priority  
• JP 2854797 A 19970128  
• RU 96110002 A 19960529

Abstract (en)  
[origin: EP0810725A2] A surface acoustic wave device capable of exhibiting high temperature stability and being downsized includes a wafer constructed of a trigonal lanthanum/gallium silicate crystal cut out at predetermined cut angles (  $\alpha$  ,  $\beta$  ). Application of a predetermined voltage signal to the wafer permits a surface acoustic wave to be excited in the wafer and propagate in the wafer. Supposing that the crystal has three crystal axes including an X-axis (electric axis), a Y-axis (mechanical axis) and a Z-axis (optical axis), the wafer is cut out so that a normal line (n) on a surface of the wafer has the cut angle  $\alpha$  defined to be  $20 \text{ DEG} \leq \alpha \leq 40 \text{ DEG}$  with respect to the Y-axis in a counterclockwise direction from the Y-axis in a Y-Z plane and a propagation direction (S) of the surface acoustic wave has the cut angle  $\beta$  defined to be  $35 \text{ DEG} \leq \beta \leq 70 \text{ DEG}$  with respect to the X-axis in a counterclockwise direction from the X-axis in the surface of the wafer. <IMAGE>

IPC 1-7  
**H03H 9/02**

IPC 8 full level  
**H03H 9/02** (2006.01); **H03H 9/25** (2006.01)

CPC (source: EP US)  
**H03H 9/0259** (2013.01 - EP US); **H03H 9/25** (2013.01 - EP US)

Citation (search report)  
• [X] GOTALSKAYA A N ET AL: "PECULARITIES OF TECHNOLOGY, PHYSICAL PROPERTIES AND APPLICATIONS OF NEW PIEZOELECTRIC MATERIAL LANGASITE(LA3GA5SI014)", PROCEEDINGS OF THE INTERNATIONAL FREQUENCY CONTROL SYMPOSIUM, SALT LAKE CITY, JUNE 2 - 4, 1993, no. SYMP. 47, 2 June 1993 (1993-06-02), INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, pages 339 - 347, XP000420150  
• [XA] I.B. YAKOVKIN ET AL.: "Numerical and Experimental Investigation in Langasite", IEEE ULTRASONICS SYMPOSIUM, 7 November 1995 (1995-11-07) - 10 November 1995 (1995-11-10), New York, US, pages 10-1389 - 392, XP002112466  
• [A] DUBOVNIK M F ET AL: "LANGASITE (LA3GA5SIO14) AN OPTICAL PIEZOELECTRIC: GROWTH AND PROPERTIES", PROCEEDINGS OF THE INTERNATIONAL FREQUENCY CONTROL SYMPOSIUM, BOSTON, JUNE 1 - 3, 1994, no. SYMP. 48, 1 June 1994 (1994-06-01), INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, pages 43 - 47, XP000674152

Cited by  
EP0865156A3; US6285112B1; EP0874455B1; EP1047190A4

Designated contracting state (EPC)  
DE FI FR GB SE

DOCDB simple family (publication)  
**EP 0810725 A2 19971203; EP 0810725 A3 19991027**; CN 1173040 A 19980211; TW 395086 B 20000621; US 5821673 A 19981013

DOCDB simple family (application)  
**EP 97303330 A 19970516**; CN 97113126 A 19970526; TW 86107251 A 19970528; US 86239397 A 19970523